

## **REMARKS**

### **Present Status of the Application**

The Office Action mailed October 10, 2002 rejected all presently-pending claims 8-12. Applicant has amended independent claim 8 to clarify the present invention and added new claims 13-14. After entry of the foregoing amendments, claims 8-14 remain pending in the present application, and reconsideration of those claims is respectfully requested.

### **Claim Rejections – 35 USC 103**

*The Office Action rejected claims 8-12 under 35 U.S.C. §103(a), as being unpatentable over Gardner et al (U.S. Patent 6,096,591 → '591) in view of Eklund et al. (U.S. Patent 5,656,514 → '514).*

Applicant respectfully traverses the rejections for at least the reasons set forth below. Nevertheless, Applicant has amended independent claim 8 to clarify the present invention and further distinguish it from the prior art.

The present invention is directed to a high-resistive thin film resistor. The amended claim 8 reads:

8. (Once Amended) A high resistive thin film resistor structure comprising:
  - a substrate having an isolation region and an active region;
  - a patterned, lightly doped polysilicon layer located on and in contact with the isolation region;
  - a diffusion barrier layer located above the lightly doped polysilicon layer; and
  - a spacer located on the sidewalls of the lightly doped polysilicon layer and the barrier diffusion layer.

According to the Examiner, the cited '591 patent discloses a high resistive thin film resistor structure comprising a substrate (202) having a isolation region (276) and an active region (208), a patterned lightly doped polysilicon layer (124) located above the isolation region, a diffusion barrier layer (122) and a spacer (142) located on the sidewalls of the lightly doped polysilicon layer and the barrier diffusion layer. Further, the Examiner asserts that the cited patent '524 teach the barrier layer (22) located above the polysilicon layer (14).

Applicant respectfully disagrees with the Examiner's interpretation of '591. Refer to col. 5, lines 53-63 of '591, the polysilicon layer 124 is etched to form a **polysilicon gate 128, not a thin film resistor**, as shown in FIG. 1H. Further, the polysilicon layer 124 is **formed on the gate oxide layer 122, not formed on and in contact with the isolation region** as required by claim 8. Clearly, the '591 patent fails to teach or suggest "a patterned, lightly doped polysilicon layer located on and in contact with the isolation region". Clearly, gate 128 cannot be modified to be located on and in contact with the isolation region, because that would destroy its structural identity and would be against its intended purpose.

As acknowledged in the Office Action, the '591 patent also fails to teach or suggest "a diffusion barrier layer located above the lightly doped polysilicon layer".

Further, the high resistive thin film resistor structure of the present invention as defined in claim 8 comprises "a spacer located on the sidewalls of the lightly doped polysilicon layer and the barrier diffusion layer". The '591 patent does not teach or suggest such a spacer structure. The Office Action has identified doped polysilicon layer 124 and diffusion barrier layer 122 of the '591 patent as equivalent to that recited in claim 8. However, the spacer (142) in the '591

patent is located only on the sidewall of gate 128 (which is formed by etching the polysilicon layer 124) and does not cover the sidewall of the layer 122.

The Office Action noticed that Gardner lacks the diffusion barrier layer located above the polysilicon layer, but cited '524 patent to teach a barrier layer (22) located above the polysilicon layer (14). Applicant respectfully submits that the proposed combination is improper for the reasons set forth below.

The polysilicon layer 124 of '591 is for forming a polysilicon gate 128 located on a gate oxide layer 122, while the polysilicon layer 14 (20) of '524 is for forming a resistor. There is no motivation and no purpose to modify the gate structure of polysilicon gate 128 and gate oxide layer 122 in '591 with the resistor structure of '524. Thus, the proposed combination is improper and cannot support the rejection under 35 U.S.C. 103.

Further, the '524 patent clear cannot cure the above discussed deficiencies of '591. Therefore, even if '591 and '524 were combined as proposed, the combination would still fail to disclose all the features of Claim 8.

For at least the reasons discussed above, Applicant respectfully submits that the amended independent claim 8 patently defines over *Gardner et al* and *Eklund et al*. For at least the same reason, dependent claims 9-12 also define over *Gardner et al* in view of *Eklund et al* since they are dependent on claim 8.

New claims 13 and 14 depend from claim 8. Thus, they are patentable for at least the same reasons as claim 8. In addition, claims 13 and 14 contain features that further distinguish over the prior art.

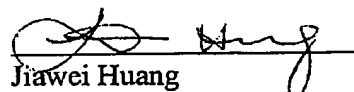
**CONCLUSION**

For at least the foregoing reasons, it is believed that all pending claims 8-14 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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**VERSION WITH MARKINGS TO SHOW WHERE CHANGES MADE**

**In the Claims**

Claim 8 has been amended as follows:

8. (Once Amended) A high resistive thin film resistor structure comprising:
- a substrate having an isolation region and an active region;
  - a patterned, lightly doped polysilicon layer located [above] on and in contact with the isolation region;
  - a diffusion barrier layer located above the lightly doped polysilicon layer; and
  - a spacer located on the sidewalls of the lightly doped polysilicon layer and the barrier diffusion layer.

New claims 13 and 14 have been added.